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Practitioner's Docket No.: 007476-0307163  
Client Reference No.: DPET 135707 MJ

**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of: FRANK  
VERSCHUERE, et al.

Confirmation No: UNKNOWN

Application No.: 10/727,669

Group No.: UNKNOWN

Filed: December 5, 2003

Examiner: UNKNOWN

For: DEVICE FOR ATTACHING A SLAT TO THE FRAME OF A SLATTED BASE

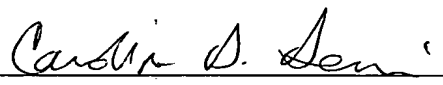
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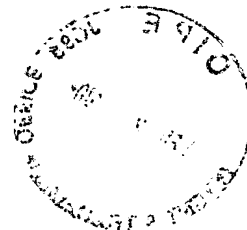
**SUBMISSION OF PRIORITY DOCUMENT**

Attached please find the certified copy of the foreign application from which priority is claimed for this case:

<u>Country</u>	<u>Application Number</u>	<u>Filing Date</u>
Europe Patent Office	02447246.6	12/6/2002

Date: February 27, 2004  
PILLSBURY WINTHROP LLP  
P.O. Box 10500  
McLean, VA 22102  
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**Europäisches  
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**Bescheinigung**

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**Attestation**

Die angehefteten Unterlagen stimmen mit der ursprünglich eingereichten Fassung der auf dem nächsten Blatt bezeichneten europäischen Patentanmeldung überein.

The attached documents are exact copies of the European patent application described on the following page, as originally filed.

Les documents fixés à cette attestation sont conformes à la version initialement déposée de la demande de brevet européen spécifiée à la page suivante.

**Patentanmeldung Nr.    Patent application No.    Demande de brevet n°**

02447246.6

Der Präsident des Europäischen Patentamts;  
Im Auftrag

For the President of the European Patent Office

Le Président de l'Office européen des brevets  
p.o.

**R C van Dijk**





Anmeldung Nr:  
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Anmelder/Applicant(s)/Demandeur(s):

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Bezeichnung der Erfindung/Title of the invention/Titre de l'invention:  
(Falls die Bezeichnung der Erfindung nicht angegeben ist, siehe Beschreibung.  
If no title is shown please refer to the description.  
Si aucun titre n'est indiqué se referer à la description.)

Device for attaching a slat to the frame of a slatted base

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AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LU MC NL PT SE SI SK





- 1 -

**"Device for attaching a slat to the frame of a slatted base"**

The present invention relates to a device for attaching at least one slat of a slatted base to the frame of said slatted base in such a way that the height of the slat relatively with said frame is adjustable, according to the preamble of the first claim. Such a device is known in the art. The known device comprises a first member arranged to be attached to the inner side of the frame of the slatted base and comprising first connecting means, a second member comprising a top portion arranged for engaging an extremity of at least one slat of said slatted base, a base portion connected to said top portion by means of at least one resilient member and second connecting means for cooperating with said first connecting means so as to allow connecting said first and second members in a plurality of relative positions so that the height of said at least one slat is adjustable relatively with said frame.

DE 10049946 A1 describes a device according to the known art, in which the second member of the device comprises two resilient members on top of which the extremities of two slats of a slatted base are respectively disposed once engaged in the top portion of the second member. The bottom of the resilient members are themselves disposed on top of the second connecting means which consist in two orifices provided side by side in the base portion of the second member of the device and arranged for receiving corresponding pins of the first connecting means of the first member of the device. The height of the slats engaged in the top portion of said second member is adjustable relatively to the frame of the slatted base between two extreme positions,

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which are determined by two positions of the first connecting means of the first member of the device relatively to the inner side of the frame at which said first member is attached. Because the resilient members of the second member are disposed above the second connecting means of said second member, the slats engaging the top portion of this second member of the device remain in a position above said second connecting means, even when the resilient members are compressed, by the weight of a person lying on the slatted base. As a consequence, the height of the second member, as well as the height of the slatted base as a whole are relatively important. This implies that in many bed structures, the bottom of a mattress lying on the slatted base of DE 10049946 A1 will extend above these sides because of its huge height and therefore said mattress will not properly be held in place by said sides.

The same problem arises with the device disclosed in EP 1013200 B1, which comprises a second member having a resilient member consisting of a flexible bent arm whose upper and lower ends are connected by means of a central piece. The lower end of the bent arm is connected to the base portion of said second member and the upper end of the bent arm is connected to a top portion of the device, the top portion being arranged for receiving the extremities of two slats of a slatted base. The base portion of the second member comprises second connecting means consisting in pins arranged to be received in first connecting means of the first member of the device, said first connecting means consisting of a plurality of passages disposed above each other in the height adjustment direction of the two slats relatively to the frame of the slatted base. While the bent arm and central piece of the resilient member extend behind the connecting pins of the first member, the top end of said bent arm projects above said pins in such a way that the slats whose extremities are engaged in the aforementioned top portion of the device, remain above said second connecting means, even when the resilient members are compressed by the weight of a person lying on the

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slatted base. This thus leads to the same problem as with the device according to DE 10049946 A1.

CH 678447 describes a further device of the kind of those afore described, which endures the same problem as the latter.

5

The invention overcomes this problem in providing a device for attaching at least one slat of a slatted base to the frame of said slatted base in such a way that the height of the slat relatively with said frame is adjustable and in which the resilient member and the second connecting  
10 means of the second member of the device are disposed relatively to each other in such a way that when compressing said resilient member, said top portion of said second member is displaceable in the height adjustment direction of the slat with respect to the frame, to the level of said second connecting means.

15

Thanks to the specific configuration of the resilient member and the second connecting means according to the invention, for a given compression amplitude of the resilient member, the height of said second member can be reduced comparatively with second members of devices according to the prior art. Therefore, contrary with slatted bases  
20 comprising devices for attaching at least one slat of said slatted base to its frame in such a way that the height of the slat relatively with the frame can be adjusted according to the prior art, in many bed structures in which a slatted base comprising the device according to the invention is disposed, a mattress lying on said slatted base will properly be held in  
25 place by said sides of the bed structure due to the fact that the slatted base will not flush at these sides because of the fact that the total height of said slatted base is limited and therefore, the bottom of the mattress will not extend above said sides.

Preferred embodiments of the invention are described in the  
30 dependent claims.

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Other details and advantaged of the invention will appear from the following description and figures, which are given as examples which do not restrict the scope of the invention, and in which,

fig. 1a is a front perspective view of the second member of  
5 a device according to the invention,

fig. 1b is a rear perspective view of a second member of a device according to the invention,

fig. 2 is a front perspective view of the first member of a device according to the invention,

10 fig. 3 is a front perspective view of a leading member of a device according to the invention,

fig. 4 is a front perspective view of a positioning member of a device according to the invention,

15 fig. 5a is a top perspective view of a first configuration of the leading member and the positioning member of a device according to the invention when mounted on slats of a slatted base,

fig. 5b is a top perspective view of a second configuration of the leading member and the positioning member of a device according to the invention when mounted on slats of a slatted base.

20

Referring to fig. 1a, 1b and 2, there is shown a second member 1 of a device according to the invention, said second member comprising a rigid base portion 1' and a flexible top portion 1'' having a first and a second passage arranged to engage the extremities  
25 of a first and a second slat of a slatted base (not shown). Said base 1' and top 1'' portions of the second member 1 are connected by means of a first and a second resilient members 4 which are integral with the top 1'' and bottom 1' portions of the second member 1 of the device. These top 1'' and bottom 1' portions as well as the resilient members 4 of the  
30 second member 1 can be made of the same material, such as synthetic rubber, and however have different stiffness degrees, due to the specific

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construction of each of these elements. Each resilient member 4 comprises two superposed oval spring portions 12 in such a way that each said first and second passages of the top portion 1" of the second member 1 of the device are respectively disposed above said first and second resilient members 4. The first and second resilient members 4 are in addition respectively mounted on top of a first and second support bloc 13 being part of said base portion 1'. The second member 1 comprises second connecting means 5 arranged to cooperate with first connecting means 5' of the first member 2 of the device according to the invention, in view of adjusting the height of the slats engaged in the top portion 1" of the second member 1 relatively with the frame of the slatted base at which said first member is aimed at being attached. The first and second resilient members 4 are disposed laterally on opposite sides of the second connecting means 5. Therefore, by compressing the first and second spring members 4, namely by the weight of a person lying on the slatted base whose slats are attached to its frame by means of the device according to the invention, the top portion 1" of the second member 1 of this device can be displaced down in the sense of compression of said resilient members 4, as low as to the level of said connecting means 5. These connecting means 5 comprise a plurality of superposed recesses 7 having a truncated conical profile for facilitating the introduction therein of two superposed protrusions 8 having corresponding profiles comprised in the first connecting means 5' of the first member 2 of the device according to the invention. Protrusions 8 and recesses 7 have a cross section of a general oval shape having a central region tightened along the small axis of the oval, in order to ensure a firm grip between protrusions 8 and recesses 7 when the first member 2 and the second member 1 of the device are connected together by means of the first 5 and second 5' connecting means. Truncated conical protrusions 8 and recesses 7 are angled of less than 90° relatively with the height adjustment direction of the slats of the slatted base relatively to said

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frame. This angled configuration of protrusions 8 and recesses 7 is provided in order that the weight of a person lying on the slatted base will lead to forces directed to the inner side of the frame of said slatted base at which the first 2 member of the device is attached, in reinforcing the connexion between the first 2 and the second 1 members of said device.

5 The base portion 1' of the second member 1 of the device is provided with a protrusion 11 extending downwardly below the second connecting means 5 and having a thickness larger than the distance separating the two superposed protrusions 8 of the first connecting means 5' of the first

10 member 2 of the device. Thanks to the provision of the protrusion 11, said first and second connecting means 5 and 5' can only be connected when both of the protrusions 8 of the first connecting means 5' are introduced into two successive corresponding recesses 7 of the second connecting means 5. This ensures a strong connection between first and

15 second members 2 and 1 of the device. Each of the recesses 7 comprises a bottom with a hole 10 through which the extremity of a protrusion 8 is visible when this protrusion 8 is introduced into said recess 7. The extremity of one of said protrusions 8 is in addition provided with a

20 pin 9 arranged to enter the aforementioned holes 10 in order to allow visual identification of the relative position of the first and second members 2 and 1 of the device when they are connected by means of the first and second connecting means 5' and 5 they respectively comprise, which relative position determines the height of the slats of the slatted base whose extremities are engaged in the top portion 1" of the second

25 member 1 of the device, relatively to the frame of said slatted base at which the first member 2 is attached. The top portion 1" of the second member 1 of the device has a wing member 3 extending in the direction of engagement of the extremities of the first and second aforementioned slats of the slatted base within said top portion 1" and arranged for

30 prolonging said extremities above the frame of the slatted base. This enables two slatted bases comprising a device according to the invention

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to be disposed side-by-side without having a gap there between, in the  
benefice of the comfort of persons lying on such side-by-side placed  
slatted bases. The base portion 1' of the second member 1 of the device  
according to the invention is further provided with two lateral flaps 6  
5 disposed on each side of this base portion 1' and arranged for handling  
said second member of the device. Thanks to the provision of the flaps 6,  
it is easy for a person to manipulate the second member of the device in  
order to modify its relative position to the first member and consequently  
to adjust the height of the first and second slats of the slatted base  
10 engaged within the top portion of said second member relatively with the  
frame of said slatted base at which the first member is attached.

Referring now to fig. 3, 4, 5a and 5b, there is shown in fig. 3  
a leading member 15 of a device according to the invention, aimed at  
receiving two slats (not shown) of a slatted base within its passages 18 in  
15 order to maintain a constant distance between these slats. The leading  
member 15 further comprises a third passage 19 for receiving a third  
reinforcing slat (not shown) of the slatted base, behind the space  
separating the two slats received by the passages 18 of the leading  
member 15, in order to enable a local reinforcement of the structure of  
20 said slatted base, especially in its lengthwise central region, when it is  
used by corpulent persons. The leading member 15 can be resilient as  
the resilient members 4 of the second member of the device and can be  
constituted with the same synthetic rubber material.

In fig. 4, there is shown a positioning member 16 having a  
25 top portion 14 and two underlying side portions 17 is further provided  
within the device according to the invention. This positioning member 16  
can slide between the two slats of the slatted base received in the  
passages 18 of the leading member 15, which slats have then two  
opposite of their respective longitudinal edges tightened between said top  
30 portion 14 and side portions 17 of the positioning member 16. The  
positioning member 16 further comprise a bottom portion 21 having two

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lateral underlying protrusions aimed at maintaining the aforementioned third slat received in the third passage 19 of the leading member 15 in its central position relatively with the two passages 18 of said leading member 15. Preferably, the positioning member 16 is located near the  
5 centre of the length of the slats of the slatted base received in said passages 18 and 19.

Figs 5a illustrates a first configuration of the respective positions of the leading member 15 and positioning member 16 in which said leading member is disposed along said positioning member when  
10 the latter is itself disposed near the centre of the length of the slats 22, 22' and 23 received in passages 18 and 19 of the leading member 15. In this configuration, the reinforcement provided by the third slat 23 to the structure of the slatted base is minimal. Fig. 5b illustrates a second configuration of the respective positions of the leading member 15 and  
15 positioning member 16 in which said leading member is disposed mostly remote from said positioning member when the latter is itself disposed near the centre of the length of the aforementioned slats 22, 22' and 23. In this configuration, the reinforcement provided by the third slat 23 to the structure of the slatted base is maximal. Between these two extreme  
20 configurations, several positions of the leading member 15 relatively to the positioning member 16 can be chosen in order to adapt the reinforcement afforded by the third slat 23 to the structure of the slatted base, namely in function of the specific weight of each person lying on said slatted base.

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**CLAIMS**

1. Device for attaching at least one slat of a slatted base to the frame of said slatted base, the device comprising a first member (2) arranged to be attached to the inner side of said frame and comprising first connecting means (5'), a second member (1) comprising a top portion (1'') arranged for engaging an extremity of at least one slat of the slatted base, a base portion (1') connected to the top portion by means of at least one resilient member (4) and second connecting means (5) arranged to cooperate with the first connecting means (5') so as to allow connecting the first (2) and second (1) members in a plurality of relative positions so that the height of the at least one slat is adjustable relatively to the frame of the slatted base, characterised in that said resilient member (4) and said second connecting means (5) are disposed relatively to each other in such a way that when compressing said resilient member (4), said top portion (1'') of said second member (1) is displaceable in the height adjustment direction of said at least one slat with respect to the frame, to the level of said second connecting means (5).

2. Device according to claim 1, characterised in that said resilient member (4) is disposed laterally with respect to said second connecting means (5).

3. Device according to claim 2, characterised in that said second member (1) comprises a first and a second resilient member (4), disposed on opposite sides of said second connecting means (5) and in that said top portion (1'') of said second member (1) is arranged for engaging the extremities of a first and a second slat of said slatted base in such a way that the extremity of the first slat is positioned on top of the first resilient member (4) and the extremity of the second slat is disposed on top of the second resilient member (4).

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4. Device according to anyone of the preceding claims, characterised in that said base portion (1') of said second member (1) is rigid and in that said top portion (1'') of said second member (1) is flexible.

5 5. Device according to any preceding claims, characterised in that each resilient member (4) is integral with said base (1') and top (1'') portions of said second member (1).

6. Device according to anyone of the preceding claims, characterised in that said first connecting means (5') comprise at least  
10 one protrusion (8) and in that said second connecting means comprise a plurality of recesses (7) disposed above each other in the height adjustment direction of said at least one slat relatively to said frame and arranged for engaging said protrusion (8).

7. Device according to claim 6, characterised in that  
15 said protrusion (8) and recesses (7) are angled of less than 90° relatively to the height adjustment direction of said at least one slat relatively to said frame.

8. Device according to anyone of claims 6-7, characterised in that each of the recesses (7) comprises a bottom with a  
20 hole (10) through which a pin (9) at the extremity of said protrusion (8) is visible when engaging one of said recesses (7).

9. Device according to anyone of claims 6-8, characterised in that said first connecting means (5') comprises two protrusions (8) arranged to be engaged within two successive of said  
25 recesses (7) of said second connecting means.

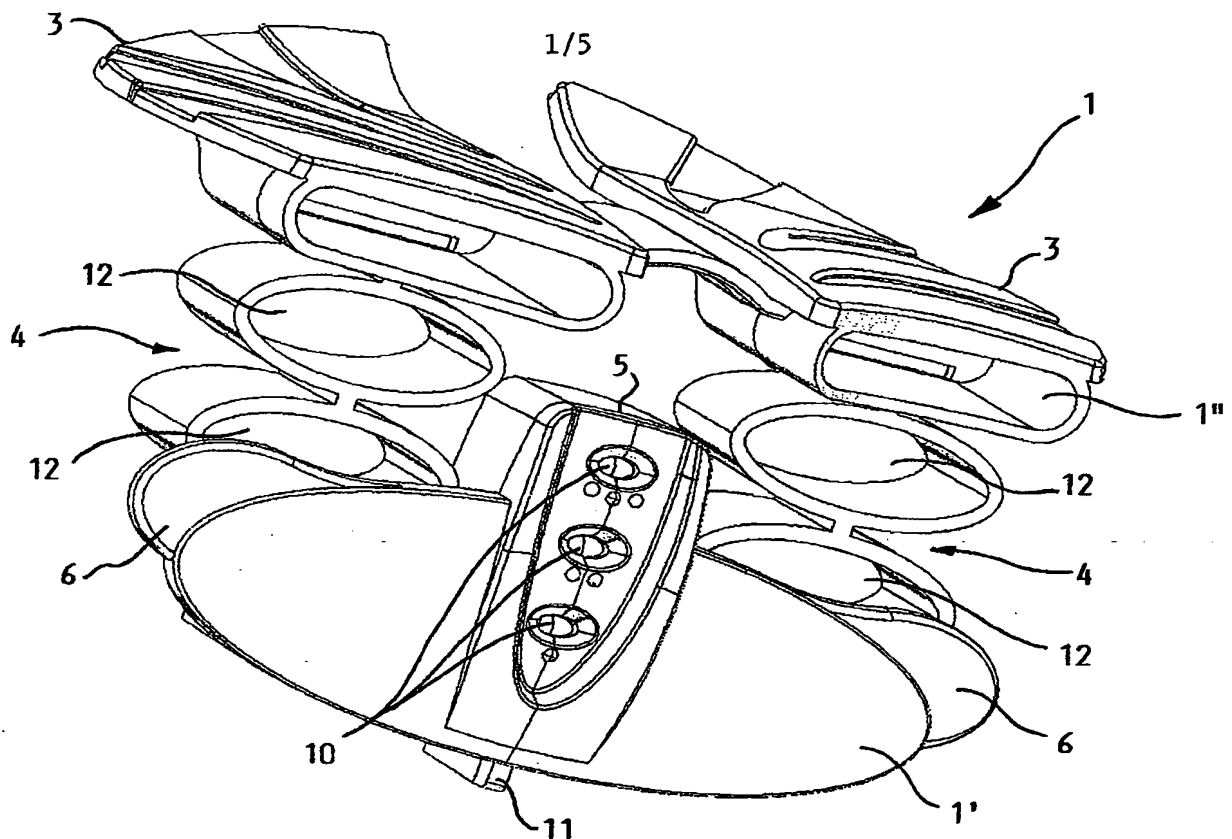
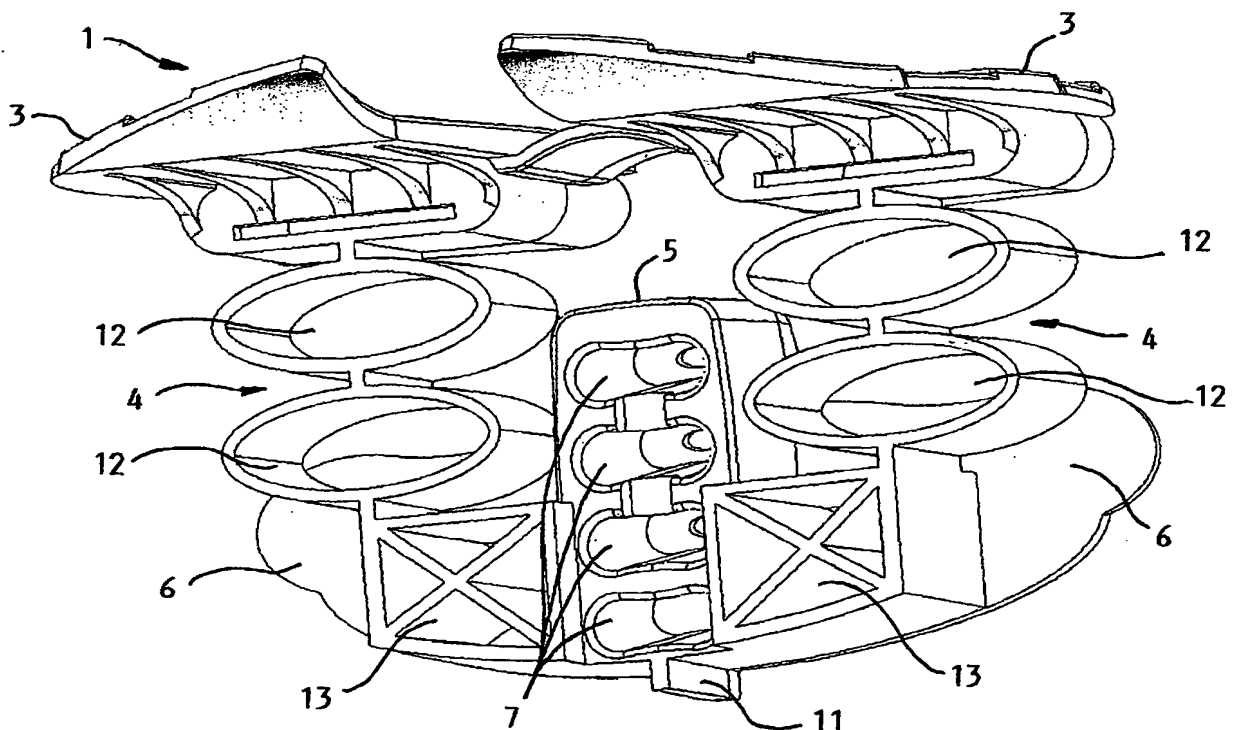
10. Device according to anyone of claims 6-9, characterised in that each protrusion (8) and each recess (7) has a truncated conical shape.

11. Device according to any of the preceding claims,  
30 characterised in that said top portion (1'') of said second member (1) has a wing member (3) extending in the direction of engagement of an

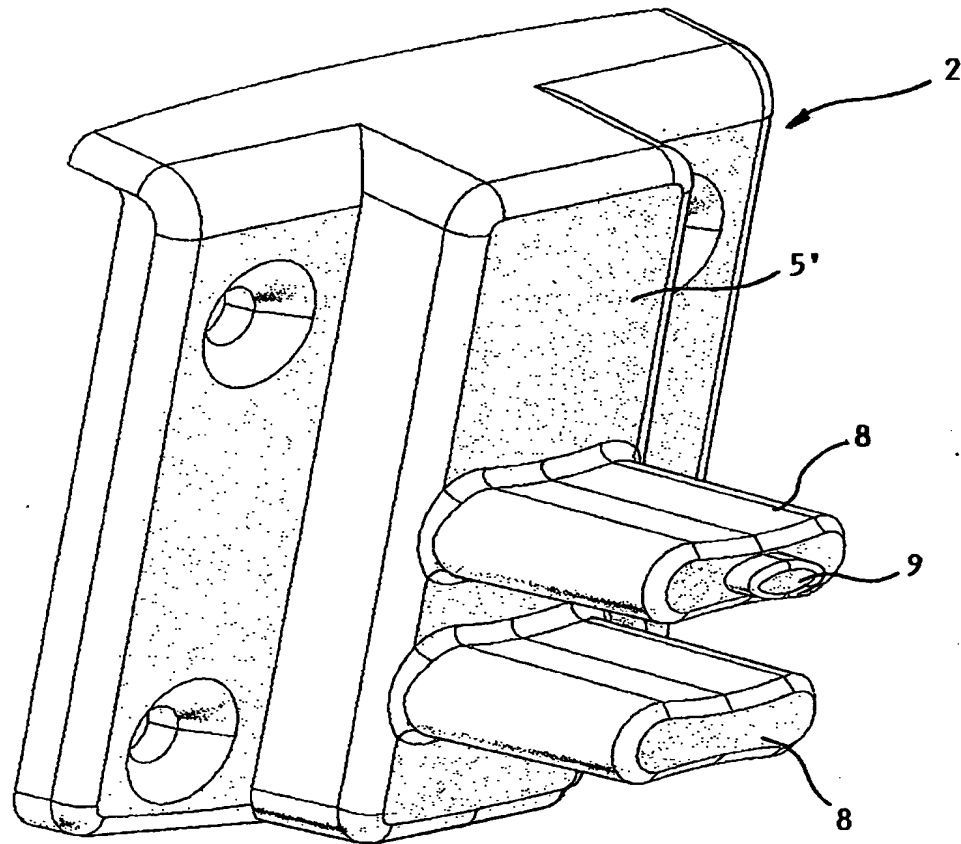
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extremity of a slat of said slatted base within said top portion (1') and arranged for prolonging said extremity above the frame of said slatted base.

12. Device according to any preceding claims,  
5 characterised in that said base portion (1') of said second member (1) comprises two lateral flaps (6) for handling said second member.

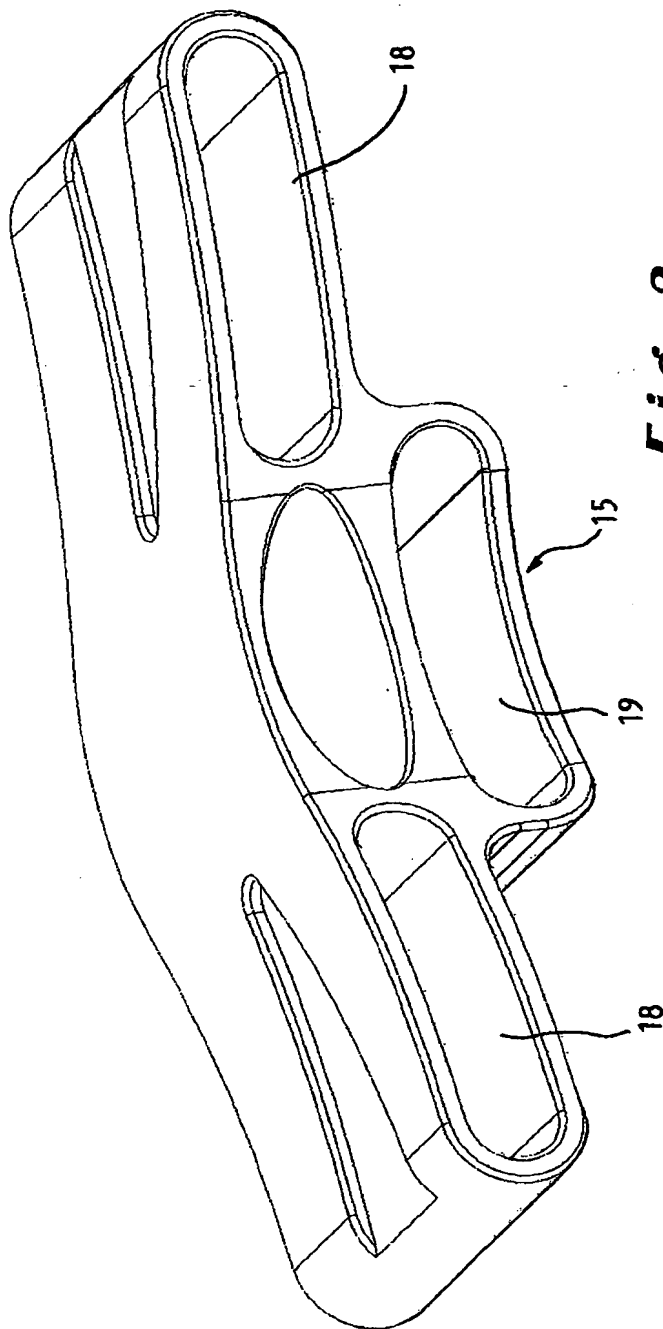
**Fig. 1a****Fig. 1b**

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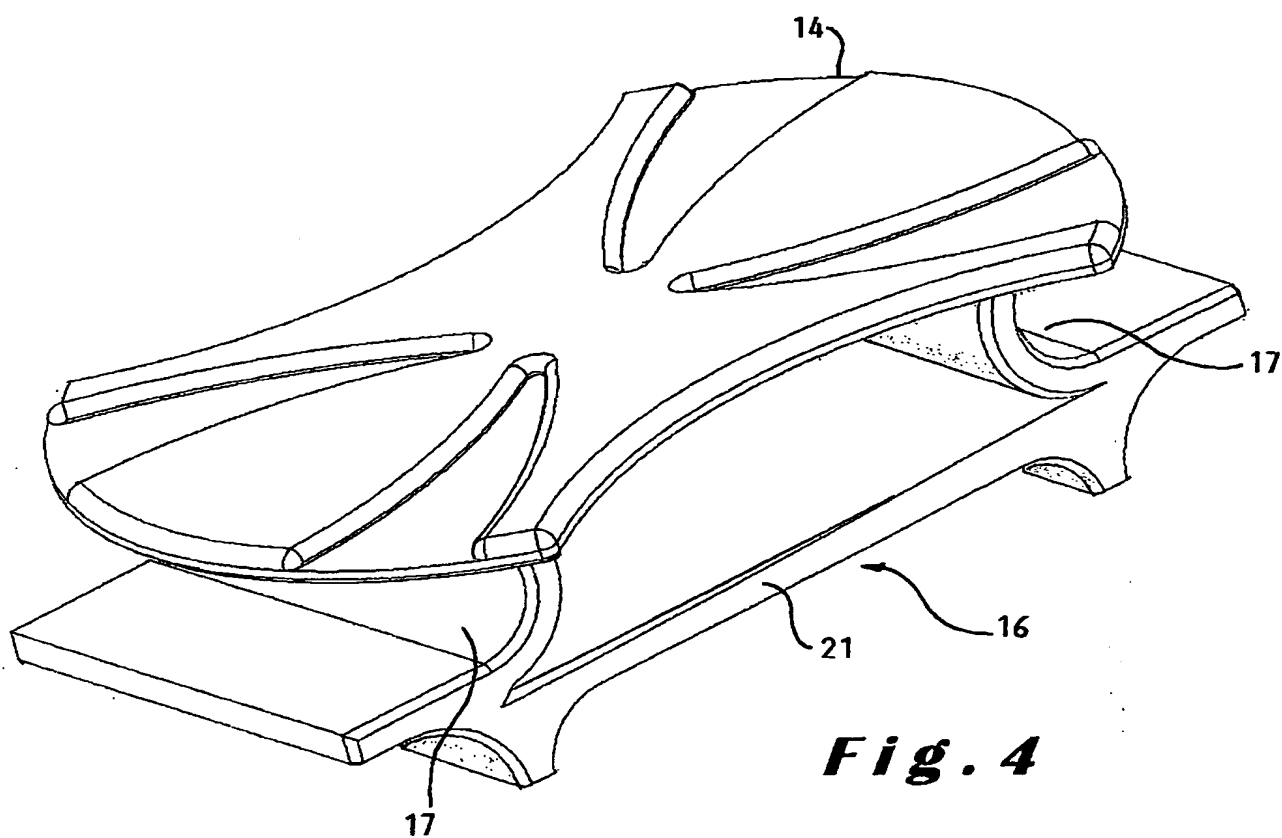
**Fig. 2**

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**Fig. 3**

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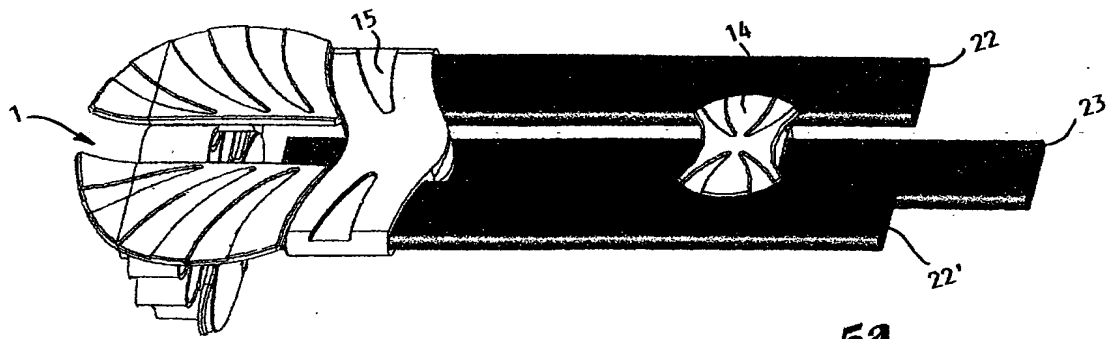


Fig. 5a

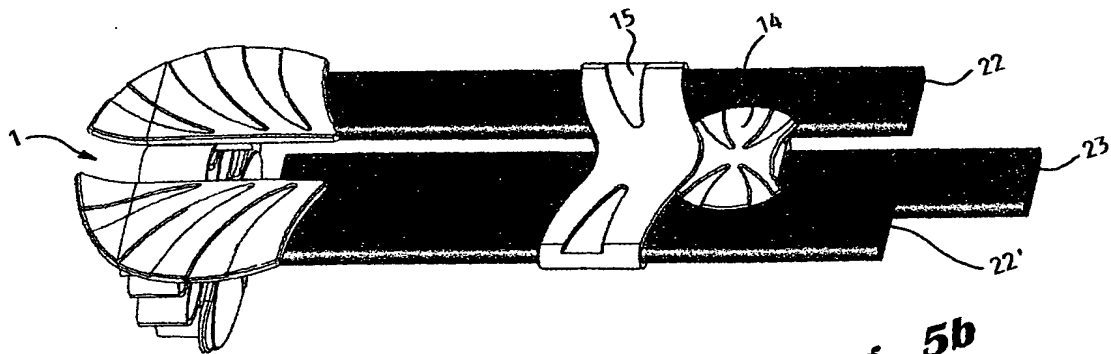


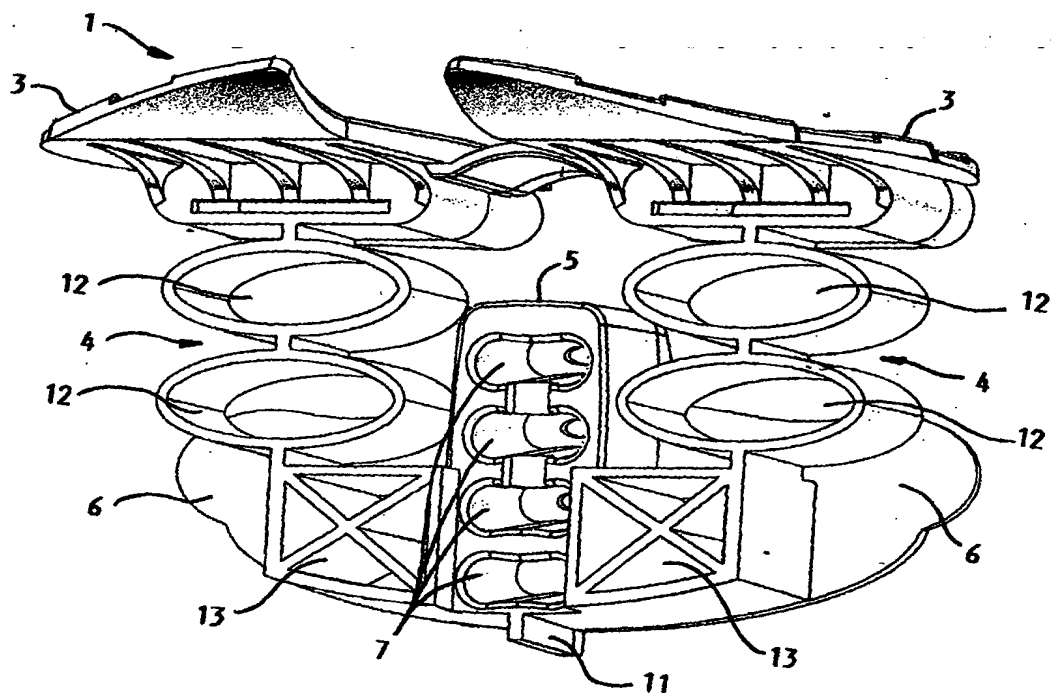
Fig. 5b



**ABSTRACT****"Device for attaching a slat to the frame of a slatted base"**

The invention relates to a device for attaching at least one slat of a slatted base to the frame of said slatted base, the device comprising a first member (2) arranged to be attached to the inner side of said frame and comprising first connecting means (5'), a second member (1) comprising a top portion (1'') arranged for engaging an extremity of at least one slat of the slatted base, a base portion (1') connected to the top portion by means of at least one resilient member (4) and second connecting means (5) arranged to cooperate with the first connecting means (5') so as to allow connecting the first (2) and second (1) members in a plurality of relative positions so that the height of the at least one slat is adjustable relatively to the frame of the slatted base. The resilient member (4) and said second connecting means (5) are disposed relatively to each other in such a way that when compressing said resilient member (4), said top portion (1'') of said second member (1) is displaceable in the height adjustment direction of said at least one slat with respect to the frame, to the level of said second connecting means (5). Therefore, for a given compression amplitude of the resilient member, the height of said second member can be reduced comparatively with second members of devices according to the prior art.

Figure 1b.



**Fig. 1b**